

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A smoke detector comprising a smoke detecting chamber, an operating circuit for sensing smoke particles in said chamber and producing an alarm signal when based on the sensed smoke particles; said smoke detector having electrical circuitry, including a coil, used when an alarm signal is produced; an input receiver for initiating a test in response to a test signal being received; an evaluation arrangement for determining operating characteristics of said operating circuit which vary over time; a controller for reporting the determined operating characteristics of said smoke detector in response to a test signal being received, said controller coding a pulsed signal with said determined operating characteristics and using said coded pulsed signal to drive said electrical coil, said coded pulsed signal causing said electrical coil to produce a coded low power RF signal which includes said determined operating characteristics, said coded RF signal being receivable within a short distance of said smoke detector.

2. A smoke detector as claimed in claim 1 wherein said smoke detector includes a sound generator used to indicate a sensed alarm condition, said sound generator having a coil associated with a drive circuit for said sound generator, and said electrical coil is part of electrical circuitry of said sound generator.

3. A smoke detector as claimed in claim 2 wherein said input receiver is a switch accessible on a face of said smoke detector.

4. A smoke detector as claimed in claim 1 wherein said electrical coil is part of a relay which is activated to produce an alarm signal.

5. A smoke detector as claimed in claim 1 wherein said coded pulsed signal additionally includes operating data information of said smoke detector.

6. A smoke detector as claimed in claim 1 wherein said smoke detector is a hardwired smoke detector including means for reporting alarm conditions to a control panel over a wired network.

7. A smoke detector comprising a smoke detecting chamber, arrangement for sensing smoke particles in said chamber, an evaluation arrangement for evaluating the operating characteristics of said arrangement for sensing smoke particles and transmitting a coded signal in a weak RF signal in response to a test signal being received by said detector, said smoke detector having a sound generator used to indicate a sensed alarm condition, said sound generator having a drive circuit associated therewith which amplifies a pulsed signal to provide a drive signal for said sound generator, a controller for reporting status information of said smoke detector in response to a user activating a test actuator, said controller coding said pulsed signal used to generate said drive signal with said status information, said coded pulsed signal causing said drive circuit to produce a low power RF signal which includes said coded status information, said coded RF signal being accurately received within a short distance of said smoke detector.

8. A smoke detector as claimed in claim 7 wherein drive circuit includes a coil necessary for producing said drive signal that inherently produces said low power RF signal when said coded pulsed signal is used by said drive circuit to produce said drive signal.

9. A smoke detector as claimed in claim 8 wherein said test actuator is a switch accessible on a face of said smoke detector.

10. A smoke detector as claimed in claim 7 wherein said status information includes information specific to current calibration information of said smoke detector.

11. A smoke detector as claimed in claim 10 wherein said status information includes operating data information of said smoke detector.

12. An alarm system comprising a plurality of smoke detectors which produce an alarm signal based on sensed conditions and reports alarm conditions to a central controller for processing; each smoke detector including a test actuator, a self evaluation arrangement for producing an assessment of the operating characteristics of the detector and reporting of said operating characteristics in response to the activation of said test actuator, and a transmitting arrangement for transmitting an RF signal in response to activation of said test actuator, said RF signal including said assessment of the operating characteristics of said smoke detector, each smoke detector including electrical circuitry used to produce said alarm signal; said electrical circuitry including at least one component which additionally is used by said transmitting arrangement to transmit said RF signal; each detector including a transmitting arrangement receiving said assessment of the operating characteristics in an input signal and uses said input signal to produce said RF signal; said system further including a portable assessment receiver, said portable assessment receiver when placed in close proximity to any activated smoke detector receives said RF signal and records said assessment of the particular signal in association with the identity of the particular smoke detector for future reference.

13. An alarm system as claimed in claim 12 wherein said electrical circuitry includes a voltage transformer used to increase the voltage of said input signal and wherein said transformer inherently produces said RF signal.

14. An alarm system as claimed in claim 13 wherein said RF signal is a weak RF signal receivable by said portable assessment receiver with approximately three feet of a transmitting smoke detector.

15. An alarm system as claimed in claim 12 wherein at least some of said smoke detectors are hardwired to said central controller.

16. An alarm system as claimed in claim 14 wherein some of said smoke detectors each communicate with said central controller using a separate RF transmitter associated therewith and which transmit said operating characteristics using said separate RF transmitter in response to actuation of said test actuator.

17. An alarm system as claimed in claim 12 wherein said portable assessment receiver includes a memory storage arrangement for retaining in memory the operating characteristics of at least several hundred smoke detectors.

18. An alarm system as claimed in claim 17 wherein said portable assessment receiver cooperates with a separate computer programmed to receive and retain the operating characteristics of smoke detectors stored in said portable assessment receiver.

19. An alarm system as claimed in claim 18 wherein said separate computer retains a log of the operating characteristics of each smoke detector and assesses changes in the operating characteristics for possible

preventive service of smoke detectors where changes in the operating characteristics are indicative of potential inadequate performance of any of said smoke detectors.

20. An alarm system as claimed in claim 19 wherein said separate computer analyses said operating characteristics for possible conditions which can be rectified by cleaning of the smoke detectors.